

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GENERAL STAPLE, INC.

Appeal No. 97-3579
Application 90/002,797¹

HEARD: MARCH 4, 1998

Before MCCANDLISH, **Senior Administrative Patent Judge**, and
MEISTER and STAAB, **Administrative Patent Judges**.

MEISTER, **Administrative Patent Judge**.

DECISION ON APPEAL

This is an appeal from the refusal of the examiner to
(1) issue a certificate of patentability confirming the
patentability of claims 1-5 of Patent No. 4,318,964, issued

¹ Reexamination proceeding for U.S. Patent No. 4,318,964 issued March 9, 1982, to General Staple, Inc., entitled Autopin Machine. According to appellants, this application is a continuation of Application Serial No. 05/877,093, filed February 13, 1978 (abandoned), which is a division of Application Serial No. 05/773,274, filed March 1, 1977 (abandoned).

Appeal No. 97-3579
Control No. 90/002,797

March 9, 1982 to Irwin Zahn and Heinrich F. Meyer (the Zahn '964 patent) and (2) allow claims 6 and 7 which have been newly presented in this reexamination proceeding.

We AFFIRM.

BACKGROUND

This is the second reexamination of the Zahn '964 patent. The first reexamination (Control No. 90/002,002) resulted in the examiner denying the request for reexamination on the grounds that no substantial new question of patentability had been raised. The present reexamination, with additional prior art being relied on by the examiner, resulted in a first appeal (94-2983) before this Board wherein the decision of the examiner was affirmed. The patent owner then filed a civil action against the Commissioner in the United States District Court for the District of Columbia seeking *de novo* review. During discovery proceedings in the civil action, the Commissioner moved to remand this reexamination to the Patent and Trademark Office (PTO) in order that newly discovered U.S.

Appeal No. 97-3579
Control No. 90/002,797

Patent No. 2,873,448 to Berg (Berg '448) might be considered. The court granted this motion and, upon remand, the examiner (1) maintained the previously affirmed rejections and (2) made new rejections based on Berg '448, as well as the patent owner's admission of prior art in the specification. The instant appeal then resulted.

THE INVENTION

The patent owner's invention pertains to a coiled supply strip of integrally-connected, preformed electrical terminal pins that are adapted to be inserted into a substrate such as a circuit board. Independent claim 1 is further illustrative of the appealed subject matter and reads as follows:

1. A coiled strip of electrically conductive material for use in an apparatus for inserting electrical terminals in a substrate; said supply strip comprising a plurality of integrally connected preformed electrical terminal pins; wherein said preformed electrical terminal pins terminate at opposite ends in pointed regions for separation; integrally connected adjacent pointed end portions of adjacent pins forming notched regions in said supply strip, said supply strip being in coiled form.

THE PRIOR ART

The prior art relied on by the examiner is:

Appeal No. 97-3579
Control No. 90/002,797

Fowler 1886	341,413	May 04,
Berg (Berg '986) 1952	2,604,986	Jul. 29,
Pierce 1956	2,748,452	Jun. 05,
Berg (Berg '448) 1959	2,873,448	Feb. 17,
Royse et al. (Royse) 1973	3,710,480	Jan. 16,
 Ragard et al. (Ragard) 1976	 3,938,364	 Feb. 17,
Metscher (decd.) 1956 (German) ²	950,221	Oct. 04,

The prior art disclosure set forth in column 1, lines 19-57 of the patent owner's specification (the admitted prior art).

THE REJECTIONS

Claims 6 and 7 stand rejected under 35 U.S.C. § 112, first paragraph, as being based upon a disclosure which fails to provide support for the subject matter now being claimed. According to the examiner there is no descriptive support in the Zahn '964 patent for the recitation in independent claim 6

² Translation attached.

Appeal No. 97-3579
Control No. 90/002,797

that the electrically conductive material is a "copper alloy that is work-hardenable."

Claims 1 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Berg '448.

Claims 1-7 stand rejected under 35 U.S.C. § 103 as being unpatentable over:

- (1) Ragard in view of Pierce, Berg '986 or Metscher;
- (2) the admitted prior art in view of Ragard and Royse;
- (3) Ragard in view of Royse and Fowler;
- (4) Ragard in view of Berg '448; and
- (5) the admitted prior art in view of Ragard and Berg '448.

The examiner's rejections are explained on pages 4-13 of the answer.

OPINION

Initially, we note that the full statement of the arguments of the patent owner and the examiner in support of their respective positions may be found on pages 6-57 of the brief, pages 1-5 of the reply brief and pages 14-22 of the

Appeal No. 97-3579
Control No. 90/002,797

answer. In support of the position that there is adequate descriptive support in the Zahn '964 patent for the recitation that the electrically conductive material is a "copper alloy that is work-hardenable," and as evidence of nonobviousness, the patent owner has relied on one affidavit and twenty one (21) declarations. The affidavit and declarations are specifically identified in footnote 2 of the brief (page 9).³ As additional evidence, the patent owner has relied on selected portions of depositions of Ackerman, Irwin Zahn and Barnes which were taken during the course of the above-noted civil action. Copies of the relied on selected portions of these depositions may be found in the "RESPONSE TO OFFICE ACTION" filed on March 15, 1996 (Paper No. 42).

We have given careful consideration to the patent owner's invention as described in the patent, to the appealed claims, to the prior art applied by the examiner and to the respective positions advanced by the patent owner in the brief and reply brief and by the examiner in the answer. These considerations

³ In the interest of consistency, we will hereinafter refer to the affidavit and various declarations by the same designations utilized by the patent owner in footnote 2 of the brief.

Appeal No. 97-3579
Control No. 90/002,797

lead us to conclude that (1) the examiner's rejection of claims 6 and 7 under § 112, first paragraph, is well-founded, notwithstanding the patent owner's evidence to the contrary, and (2) the subject matter defined by claims 1 and 6 is anticipated by Berg '448 under § 102(b). It is also our conclusion that the prior art relied on by the examiner in the various rejections under § 103 establishes a *prima facie* case of obviousness with respect to the subject matter defined by claims 1-7 and that the patent owner's evidence of nonobviousness fails to outweigh the evidence of obviousness established by the relied on prior art. Accordingly, we will sustain all of the above-noted rejections. Our reasons for these determinations follow.

The Rejection Under § 112, first paragraph:

We initially observe that the description requirement found in the first paragraph of 35 U.S.C. § 112 is separate from the enablement requirement of that provision. *See, e.g., Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1560-64, 19 USPQ2d 1111, 1114-17 (Fed. Cir. 1991) and *In re Barker*, 559 F.2d 588,

Appeal No. 97-3579
Control No. 90/002,797

591, 194 USPQ 470, 472 (CCPA 1977), **cert. denied**, 434 U.S.

1064 (1978). With respect to the description requirement, the court in **Vas-Cath, Inc. v. Mahurkar** at 935 F.2d 1563-64, 19

USPQ2d 1117 stated:

35 USC 112, first paragraph, requires a "written description of the invention" which is separate and distinct from the enablement requirement. The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession **of the invention**. The invention is, for purposes of the "written description" inquiry, **whatever is now claimed**.

. . . drawings alone **may** be sufficient to provide the "written description of the invention" required by § 112, first paragraph.

There is no dispute that the Zahn '964 patent contains no **explicit** disclosure of the terminal pins being formed of a copper alloy that is work hardenable. In fact, this patent contains no disclosure whatsoever of any specific material for the terminal pins. Nevertheless, the patent owner has taken the position that such a material is "clearly inherent" in the disclosure of the Zahn '964 patent. When inherency is relied on, however, the burden is on the patent owner show that the

Appeal No. 97-3579
Control No. 90/002,797

"necessary and only reasonable construction" of the Zahn '964 patent is one which will lend **clear support** to the limitation in question. **See, e.g., Kennecott Corp. v. Kyocera Int'l, Inc.**, 835 F.2d 1419, 1423, 5 USPQ2d 1194, 1198 (Fed. Cir. 1987), **cert. denied**, 486 U.S. 1008 (1988).

The patent owner recognizes this burden and relies on various declarations as well as the deposition testimony of Ackerman, Irwin Zahn and Barnes in an attempt to satisfy it. On the other hand, the examiner notes that other references, such as Royse (cited above) and the twelve references cited on pages 19 and 20 of the final rejection, use other materials in pins. Most analogous to the Zahn '964 patent from the standpoint of how the terminal pins are attached to the circuit board are Royse and Spencer⁴, both of which disclose terminal pins that are formed from a coiled supply of solder coated steel (see Royse, column 6, lines 47 and 48; Spencer, column 1, lines 19-21, wherein it is stated that wire wrap

⁴ U.S. Patent No. 3,829,949 to Spencer is cited on page 19 of the final rejection.

Appeal No. 97-3579
Control No. 90/002,797

terminal pins are "generally made of steel as being the least expensive materials with solder plating") and thereafter driven into a circuit board. In addition to Royse and Spencer, the examiner on pages 19 and 20 of the final rejection cites eleven other patents in support of his position that materials other than a copper alloy that is work hardenable were used in "pins" which can broadly be construed as "terminal" pins. Exemplary of these patents are Weatherman which discloses stainless steel terminal pins (column 14, lines 13-42); Schwenn which discloses gold-plated nickel "contact" pins (column 2, lines 24-26); Magee which discloses terminal pins made of a core of "nickel or the like" and plated with gold (column 1, lines 14-17); Muchkin which, with respect to a prior art patent, notes the high cost of nickel and gold-plated stainless steel terminal pins (column 1, lines 35-38); Richards which discloses stainless steel terminal pins (column 2, lines 52-60); and Kato which discloses "a circuit board which is

Appeal No. 97-3579
Control No. 90/002,797

provided at intervals of 5mm with unconnected aluminum pins .
. ." (column 6, lines 58-60).⁵

The patent owner contends that Royse and Spencer "are clearly not entitled to any weight because both references "predate the time of the Zahn invention [the parent of the Zahn '964 patent being filed on March 1, 1977] by several years" (brief, page 16). The patent owner further argues that the remaining references cited by the examiner are of little relevance since they are outside the time frame⁶ of the patent owner's invention. It is, of course, true that (1) Royse was filed in 1970 and issued in 1973, (2) Spencer was filed in 1973 and issued in 1974, (3) Schwenn was filed in 1969 and issued in 1971, (4) Magee was filed in 1969 and issued in 1971, (5) Weatherman was filed in 1969 and issued in 1971, (6) Muchkin was filed in 1981 and issued in 1983, (7) Richards was filed in 1984 and issued in 1986 and (8) Kato was filed in

⁵ It is not apparent from the record why the "contact" pins of Schwenn and the "pins" disclosed by Kato in column 6, lines 58-60, cannot be broadly construed as being "terminal" pins as the examiner asserts.

⁶ Throughout the brief and various declarations the appellant has referred to a time frame of 1974-77 as the period "in which the experts state no other materials were used other than copper or copper alloy" (brief, pages 29 and 30).

Appeal No. 97-3579
Control No. 90/002,797

1987 and issued in 1988. Nevertheless, all of these references are at least somewhat contemporaneous with the 1977 filing date of the Zahn '964 patent. Indeed, Spencer issued within the 1974-77 time frame argued by the patent owner. We also note that the examiner has observed in the final rejection:

It would appear that the Patent Owner would arbitrarily suggest that if pins of non-copper materials were known by those skilled in the art to be used in the year 1973, then this use would not affect the inherency issue of what was used in 1977 when the original application was filed. Indeed, would a three year moratorium on the use of non-copper pins be sufficient to establish this inherency issue? The Examiner does not find an arbitrarily established three year window moratorium on the use of non-copper pins sufficient to establish that work hardenable copper was inherently used by [the] Patent Owner at the time of filing. The rationale for this decision is that the printed circuit art **is not so uniform** that all reasonable traces of other materials in the printed circuit board industry could reasonably have been said to inherently change over to work hardenable copper during any given three year window. Support for this position includes the size of this particular field which includes at least hundreds of connector companies (see Exhibit D of Patent Owner's Response [Paper No. 42], lines 8-11 of page 154 of [the] deposition of Irwin Zahn). In addition, the varied standards and varied products of these players in this field would reasonably suggest that all players would not uniformly switch to a single material during so short a window. In addition, although

Appeal No. 97-3579
Control No. 90/002,797

some of the new products incorporating printed circuits during the 1974-1977 time frame may have been sensitive to electro-magnetic fields, many would not have been. It would not be reasonable to believe that all product types being produced before 1974 (and using e.g. Royse technology) had died out in this time frame. [Paper No. 43, pages 21 and 22.]

We also note that Weatherman (filed in 1969 and issued in 1971), Muchkin (filed in 1981 and issued in 1983) and Richards (filed in 1984 and issued in 1986), as we have noted above, all disclose the use of stainless steel as a material for terminal pins. It seems strange to us that the art would (1) use stainless steel in 1969 as evidenced by Weatherman, (2) stop using stainless steel by 1977 and (3) then start using stainless steel again in 1981 and 1984 as evidenced by Muchkin and Richards, as the patent owner would apparently have us believe.

Turning to the various declarations relied on by the patent owner with respect to the § 112, first paragraph, rejection, Lazar II and Winter II state "all" electrical terminal pins on circuit boards "used for wire-wrapping" in the 1974-77 time frame were "made exclusively of copper alloys;" however, this evidence is not commensurate in scope

Appeal No. 97-3579
Control No. 90/002,797

with the claimed subject matter inasmuch as there is no claim limitation which would require the terminal pins to be used for "wire-wrapping."⁷ Moreover, from a full reading of these declarations it appears that the basis for making this statement is bottomed, at least in part, on the **HANDBOOK OF ELECTRONIC CONNECTORS** (a copy of which is attached to the Lazar II declaration). This handbook, while making numerous references to various copper alloys, nevertheless, under paragraph 9.2 entitled "BASIS METAL" merely states the desired properties for contact materials "will **generally** confine the choice to one of the copper-base alloys . . ." (emphasis ours). This information is also reinforced by Ragard (which issued in 1976, i.e., after 1974) wherein it is stated in lines 11 and 12 of column 1 that the terminal posts "are **usually** made of a brass or copper alloy . . ." (emphasis ours). However, "generally" and "usually" are not synonymous with "all." In any event, the statements that "all" terminal pins were "exclusively" made of copper-base alloys appear to

⁷ It is not apparent from the record what characteristics a terminal pin used for wire wrapping has that "other" terminal pins, such as those disclosed by Weatherman and Richards, does not.

Appeal No. 97-3579
Control No. 90/002,797

be directly contradicted by the above-noted references to Royse, Spencer, Weatherman, Schwenn, Magee, Muchkin, Richards and Kato. As to the declaration by Rosen, this declaration merely sets forth that his statement regarding obviousness "is based on the assumption that the Ragard pin strip is made of conventional phosphor-bronze alloys." We must point out, however, that just because phosphor-bronze might have been "conventional," does not mean that the "necessary and only reasonable construction" of the Zahn '964 patent is that the terminal pins disclosed therein were likewise made of phosphor-bronze.

Turning to the Lazar IV, Lazar III, Redmonde, Peel I, Peel II, Schmid, Flowers, Shoenfeld and Gross declarations, these declarations all state that the declarants knew of no material other than copper-based alloys being used in the 1974-77 time frame and that, in their view, the "necessary and only reasonable construction" of the Zahn '964 patent is that the terminals disclosed therein are made of a copper alloy that is work hardenable. The Redmonde, Flowers, Peel I, Peel

Appeal No. 97-3579
Control No. 90/002,797

II, Lazar III and Lazar IV declarations all further note various deficiencies of using steel as a material for terminal pins (**e.g.**, the magnetic properties possessed by steel).

While we appreciate the fact that the declarants were not aware of any other material other than copper-based alloys being used in the 1974-77 time frame, we do not find that this evidence persuasively establishes that the Zahn '964 patent inherently discloses such a material, particularly when viewed in light of the reference evidence adduced by the examiner (**e.g.**, the patents to Royse, Spencer, Weatherman, Schwenn, Magee, Muchkin, Richards and Kato) which shows other materials were, as a broad proposition, known in the art for at least some applications. As to the various deficiencies of using steel for terminal pins noted by the declarants, the mere fact steel terminal pins may have disadvantages in certain applications does not detract from the fact that Royse, Spencer, Weatherman, Muchkin and Richards all broadly teach the use of steel for such pins. This is particularly the case inasmuch as the art recognizes certain advantages for using

Appeal No. 97-3579
Control No. 90/002,797

steel as a material for terminal pins, **e.g.**, that it is the "least expensive" material (see Spencer, column 1, line 21).

The Peel I declaration also has certain military specifications attached thereto which specify copper alloys be used and the declarant states that "[m]ilitary specification were commonly used in the electrical connector industry and are still used today" (see paragraph 11). It does not follow, however, that just because the military in certain of their specification specified a copper alloy and that "[m]ilitary specifications" are widely used in the electronics industry, that copper alloy is inherent in the Zahn '964 patent. The declarant further states that "[b]y 1974-1977, with the evolution of integrated circuits, microprocessors and other solid state devices . . . it was not feasible to use steel terminal pins . . ." (paragraph 8). We observe, however, that the patents to Muchkin (filed in 1981) and Richards (filed in 1984) establish an interest in the art of using steel for terminal pins well subsequent to the 1974-77 time frame.

Appeal No. 97-3579
Control No. 90/002,797

In addition, the Lazar IV declaration further notes various alleged deficiencies of the references cited by the examiner on pages 19 and 20 of the final rejection. More specifically, the declarant states that (1) the pins of Schwenn are soldered and not inserted, (2) the declarant is unaware of the "actual use" of the gold-plated nickel pins of Magee, (3) Spencer is "in error" in stating that terminal pins are "generally made of steel", (4) Weatherman's terminal pins are not used for wire wrapped terminal pins, (5) Muchkin does not use gold-plated steel terminal pins but, instead, merely states that U.S. Patent No. 3,673,681 uses such pins, (6) Richards' stainless steel terminal pins are in a "specialized application, far afield from the commercial wire wrapped printed circuit board" and (7) Kato "says nothing about terminal pins inserted into commercial printed circuit boards." As to (1) and (2), the fact that Schwenn might solder his terminal pins in place or that the declarant was "unaware" of the "actual use" of gold-plated nickel pins as taught by Magee does not alter the fact that both of these references, as we have noted above, plainly teach that it is

Appeal No. 97-3579
Control No. 90/002,797

known in the art to use gold-plated nickel as a material for terminal pins. As to (3), the declarant's position that Spencer is in error in stating that steel is "generally" used as a material for terminal pins appears to be based on the deficiencies of steel as a material noted in paragraph 25 of this declaration and paragraph 8 of the Lazar III declaration. However, as we have also noted above, the mere fact steel terminal pins may have disadvantages in certain applications, does not detract from the fact that Spencer teaches the use of steel, at least where expense is of concern (see column 1, lines 19-21) and where such disadvantages apparently are not of paramount importance. In addition, as we have also noted above, Royse, Weatherman, Muchkin and Richards all broadly teach the use of steel for terminal pins. As to (4), the contention that Weatherman's terminal pins are not used for wire wrap pins is not commensurate with the scope of the claims inasmuch as there is no limitation therein which requires the terminal pins to be used in a wire wrapping application. Moreover, as we have noted above, it is not apparent from the record what

Appeal No. 97-3579
Control No. 90/002,797

characteristics a terminal pin used for wire wrapping has that the terminal pins of Weatherman does not. As to (5), although Muchkin does not actually use gold-plated steel terminal pins, this reference nevertheless establishes by reference to U.S. Patent No. 3,673,681 that such pins are known in the art. As to (6), the declarant makes the statement that Richards' stainless steel terminal pins are utilized in a "specialized application, far afield from the commercial wire wrapped printed circuit board," apparently because they are used in an application wherein a lead wire is welded to the terminal pins, as distinguished from wrapping the wire around the terminal pin. We again point out that there is no claim limitation which requires the pins to be used in a wire wrapping application and, even if there was, it is not apparent from the record what characteristics a terminal pin used in a wire wrapping operation has that the terminal pins of Richards do not. Even if the teachings of Richards are directed to a "specialized application," there appears to be no claim limitation which

Appeal No. 97-3579
Control No. 90/002,797

would preclude such an arrangement. In any event, notwithstanding the fact that Richards might be directed to a "specialized application," this patent nevertheless clearly establishes that it is known in the art to utilize stainless steel as a material for terminal pins. As to (7), the declarant seeks to dismiss Kato as "totally irrelevant" because "Kato was concerned with neither printed circuit boards nor their terminal pins, but with encapsulated components." We must point out, however, that while in the broad background of the invention Kato states that the invention relates to preventing the corrosion of aluminum parts and refers to aluminum being employed as a material on "various portions of electronic parts such as electrodes of aluminum electrolytic capacitors . . ." (see column 1, lines 11-14), Kato also makes it clear that such parts include "a printed board which is provided at intervals of 5mm with unconnected aluminum pins . . ." (see column 6, lines 57-60, and Fig. 4a).

Turning now to the deposition testimony of Ackerman, Irwin Zahn and Barnes, Ackerman testified that the electronics

Appeal No. 97-3579
Control No. 90/002,797

industry generally used pins of "a brass, copper, beryllium," but that there were "probably hundreds of different alloys" (see page 51). Ackerman further testified that he would formulate an alloy to "get the best of two worlds, one is conductivity and the other is a hardness, to have that pin function as it's intended," but did not know if "they were all copper alloys" (see page 52).

With respect to the testimony of Irwin Zahn, Zahn was first questioned regarding a paper written by him and entitled "AUTOPIN II - AN IMPROVED PIN INSERTION SYSTEM" which was apparently delivered during a connector symposium. Although this paper states "AUTOPIN II is their 1977 product-of-the-year," Zahn testified he did not know whether the paper was presented in the year 1977 (see page 40). Fig. 5 of this paper (page 3) lists (in bullet form) pin materials used as being brass, phos. bronze, cupro nickel, platings, plastics and aluminum. Page 3 under the heading "Pin Terminals" further states:

Material: Brass, Phosphor Bronze, Cupro Nickel and **Aluminum** are **standard**, with Tin, Nickel and Gold platings. (Figure 5) [Emphasis ours.]

Appeal No. 97-3579
Control No. 90/002,797

When questioned concerning the reference to "plastics" and "aluminum" in the listing of materials in Fig. 5, Zahn indicated that the system disclosed in the paper has the ability to insert plastic and aluminum pins, and that aluminum was not work hardenable (see pages 41 and 42).

Notwithstanding the fact that (1) Fig. 5 of the paper indicates aluminum to be a material for the pins and (2) page 3 of paper plainly states that aluminum is a "standard" material for the pin terminals, Zahn thereafter testified that his company celebrated its 40th year in business in 1994 and during that entire period he had never known "the use of other than a copper-based alloy as a terminal pin for the electronics industry" (page 169).

Considering last the deposition testimony by Barnes, Barnes testified that one customer of Bead Industries ordered aluminum terminal pins as a "test," but no reorder was ever made (see pages 49 and 50). Barnes further testified that aluminum "doesn't have enough conductivity" and "is also susceptible to oxidation."

Appeal No. 97-3579
Control No. 90/002,797

Since there is no mention whatsoever of any particular material in the Zahn '964 patent, the question of descriptive support must be viewed from the standpoint of one with no foreknowledge of any specific material. **See In re Ruschig**, 379 F.2d 990, 995, 154 USPQ 118, 123 (CCPA 1967). The question is not whether the Zahn '964 patent would have enabled one of ordinary skill (**Id.**) nor is it a question of what would have been obvious to one of ordinary skill in the art (**see, e.g., Lockwood v. American Airlines, Inc.**, 107 F.3d 1565, 1571-72, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997)). Rather, it is a question of whether the Zahn '964 patent itself describes the invention. **Id.** Considering the evidence supplied by the patent owner and the reference evidence supplied by the examiner as a whole, we are of the opinion that the patent owner has established, at the most, that a copper alloy that is work hardenable is the most widely used and, perhaps, the most commercially viable material for terminal pins; but falls far short of establishing that the "necessary and only reasonable construction" of the Zahn '964 patent is that the

Appeal No. 97-3579
Control No. 90/002,797

terminal pins disclosed therein were constructed of such a material. The patent owner, relying upon a declaration by Ostrow, notes that the reference evidence adduced by the examiner represents only a "minuscule percentage of all related patents" and argues that the inherency doctrine only requires that a limitation be the "necessary and only reasonable construction" to be given the disclosure by one skilled in the art and "does not require that no other possibility existed" (brief, page 8). Thereafter, the patent owner contends that they have "qualitatively beyond a preponderance of the evidence" (brief, page 19) established that the "necessary and only reasonable construction" to be afforded by the Zahn '964 patent specification is that the terminal pins disclosed therein are made of a copper based alloy. In our view, however, the patent owner has an overly broad view of what constitutes the "necessary and only reasonable construction" to be afforded the Zahn '964 patent. From our perspective, upon considering all the evidence supplied by the patent owner and the reference evidence adduced by the examiner, there is a possibility, or perhaps

Appeal No. 97-3579
Control No. 90/002,797

even a probability, that the patent owner was in possession of terminal pins made of a copper alloy that is work hardenable at the time of the filing of the Zahn '964 patent.

"Inherency, however, may not be established by probabilities or possibilities," ***Pingree v. Hull***, 518 F.2d 624, 627-28, 186 USPQ 248, 251 (CCPA 1975) in quoting with approval from ***Hansgirk v. Kemmer***, 102 F.2d 212, 214, 40 USPQ 665, 667 (CCPA 1939).⁸

In view of the foregoing, we will sustain the rejection of claims 6 and 7 under 35 U.S.C. § 112, first paragraph.

The Rejection Under 35 U.S.C. § 102(b):

According to the examiner:

Berg '448 discloses a coiled strip of electrically conductive material for use in an apparatus for inserting electrical terminals in a substrate (**e.g.** a printed circuit board, see column 1, lines 15-37); said supply strip comprising a plurality of integrally connected preformed electrical terminal pins; wherein said preformed electrical terminal pins terminate at opposite ends in pointed regions for separation (see Figure 3);

⁸ While the issues in ***Pingree*** and ***Hansgirk*** were in the context of an interference proceeding, the "concept" regarding "written description" in ex parte cases is the same. ***Vas-Cath***, 935 F.2d at 1562, 19 USPQ2d at 1115-16.

integrally connected adjacent pointed end portions of adjacent pins forming notched regions in said supply strip, said supply strip being in coiled form (see Figure 1). In addition, Berg '448 discloses the use of brass, which is a work-hardenable copper alloy, for his strip terminals. [Answer, page 6.]

The main thrust of the patent owner's position is that:

the examiner is apparently relying upon the drawings of the two patents, i.e., Figs. 6-8 of the Zahn patent and Fig. 3 of Berg '448. As seen by the examiner, the drawings from both patents depict narrowed portions with flat ends, with the difference being only a matter of degree. However, the pins in Berg '448 do not truly terminate in pointed, narrowed ends; rather, the ends of the Berg '448 pins narrow briefly, expand to their original cross section, and then narrow again.

* * *

First, the Zahn patent makes clear that one of the purposes of the invention is to "establish terminal points to which external wiring can be secured." (Col. 1, lines 21-23). Terminal pins which terminate in blunt end portions of the same planar cross section as the pin itself are unsuited for this purpose, especially in wire wrap operations. (Col. 1, lines 33-46). The pins shown in Berg '448 terminate in ends which, as shown in the drawings including in Fig. 3, have the same planar cross section as parts of the pin itself. In fact, as pointed out in the Appeal Brief (pp. 34-35), the relatively blunt ends of the pins in Berg '448 make it difficult to use the pins for wire wrapping operations.

A second purpose of the pointed ends of the terminal pins is to facilitate insertion into a substrate such as printed circuit board. As

Appeal No. 97-3579
Control No. 90/002,797

explained in the Zahn patent (col. 4, lines 22-43), the terminal pin has a cross section dimension which is greater than the diameter of the aperture of the workpiece into which the pin is to be inserted. The end region of pin is pointed in that it is sufficiently narrowed from the pin body so that the pin can be inserted into the aperture at its pointed end and be tightly held in the substrate by the wider body of the pin. In contrast, the pins 50 disclosed in Berg '448 fit entirely within the holes 18 of a printed circuit board 16, and are held in place by ears 110 connected on either side of the pins 50. See Fig. 4. [Reply brief, pages 3 and 4.]⁹

We are unpersuaded by the patent owner's position. The terminology in the claims of a reexamination application is to be given its broadest reasonable interpretation consistent with the specification and extraneous limitations from the specification are not to be read into the claims. ***In re Paulsen***, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). Moreover, anticipation by a prior art reference does not require either the inventive concept of the claimed

⁹ Pages 5 and 6 of the reply brief also state that the examiner had not heretofore clarified his position with the respect to the § 102(b) rejection and requests that we remand this application to the examiner "for further examination including possible claim amendments in light of the Examiner's current position." We must point out, however, that under 35 U.S.C. § 134 and 37 CFR § 1.191, appeals to the Board of Patent Appeals and Interferences are taken from the decision of the primary examiner to reject claims. We exercise no general supervisory power over the examining corps and have no authority to remand the case to the examiner for the sole purpose of allowing the patent owner to amend the claims.

Appeal No. 97-3579
Control No. 90/002,797

subject matter or the recognition of inherent properties that may be possessed by the prior art reference. **See Verdegaal Bros., Inc. v. Union Oil Co.**, 814 F.2d 628, 633, 2 USPQ2d 1051, 1054 (Fed. Cir. 1987), **cert. denied**, 484 U.S. 827 (1987). A prior art reference anticipates the subject matter of a claim when that reference discloses every feature of the claimed invention, either explicitly or inherently (**Hazani v. United States ITC**, 126 F.3d 1473, 1477, 44 USPQ2d 1358, 1361 (Fed. Cir. 1997)) and **RCA Corp. v. Applied Digital Data Sys., Inc.**, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984); however, the law of anticipation does not require that the reference teach what the appellant is claiming, but only that the claims on appeal "read on" something disclosed in the reference (**Kalman v. Kimberly-Clark Corp.**, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), **cert. denied**, 465 U.S. 1026 (1984)).

Viewing the Zahn '964 patent as a whole it is readily apparent that the patent owner has used the word "pointed"¹⁰ in defining "pointed regions" and "pointed end portions" in other than its normal and accustomed meaning in the claims on appeal. Accordingly, we must turn to the specification of the Zahn '964 patent in order to determine the scope and meaning of "pointed." *See Paulsen*, 30 F.3d at 1480, 31 USPQ2d at 1674.

Turning to the specification of the Zahn '964 patent, it is stated therein that the end portions of the pins of the prior art have the "same" cross-sectional area as the supply stock which resulted in these end portions being "blunt," whereas in the instant invention the stock material comprises integrally connected preformed terminal pins that terminate in a "pointed end portion" (see, generally, column 1). Thereafter, it is stated that the "integrally connected adjacent pointed end portions of adjacent pins form **notch**

¹⁰ *The American Heritage Dictionary*, Second College Edition, 1982, Houghton Mifflin Company, Boston, MA. defines "point" as -- 1. The sharp tapered end of something. 2. Something that has a sharp or tapered end, as a knife or needle --.

regions in the supply strip" (column 1, line 67, through column 2, line 2; emphasis ours). Viewing Figs. 1 and 6-8 of the Zahn '964 patent, it is readily apparent that these integrally connected notched regions or portions have a reduced cross-sectional area relative to the remainder of the supply stock. Accordingly, consistent with the specification of the Zahn '964 patent, it is apparent that the patent owner has used the "pointed regions" and "pointed end portions" in the sense that the strip material has been notched in such a manner so as to form interconnected notched or truncated portions of a reduced cross-sectional area relative to the remainder of the supply stock, which reduced cross-sectional area is of sufficient magnitude to provide the necessary strength to allow the strip to be coiled and thereafter fed to the insertion station. Since the reduced cross-sectional area has

to be of sufficient magnitude to provide the necessary strength to hold the notched or truncated portions together when the supply stock is coiled and thereafter fed to an insertion station, these portions are of necessity "blunt" to

Appeal No. 97-3579
Control No. 90/002,797

some extent when the terminal pins are severed from the supply stock (note Figs. 6 and 7).

Viewing Figs. 2-4 of Berg '448, it is readily apparent that the upper ends of the terminal pins 50 have been notched so as to provide a truncated portion which has a significantly reduced cross-sectional area relative to the major portions of the supply stock. Accordingly, consistent with the specification of the Zahn '964 patent, we are of the opinion that the terminal pins 50 of Berg '448 can be considered to form "pointed regions" and "pointed end portions" as broadly set forth.

As to the patent owner's contention that the pins of Berg '448 would be difficult to use in wire wrapping operations, this argument is not commensurate in scope with the claimed subject matter since there is no claim limitation which requires there be a wire wrapping operation. ***See In re Self***, 671 F.2d 1344, 1348, 213 USPQ 1, 5 (CCPA 1982): "It matters not that . . . [the reference] does not operate in the same way to accomplish the same result where appellant has not limited his claims according to function or result."

Appeal No. 97-3579
Control No. 90/002,797

Moreover, even if there was such a claim limitation, we must point out that (1) there is no evidence of record to support such a contention and counsel's arguments in the brief cannot take the place of evidence (**see *In re De Blauwe***, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984), ***In re Payne***, 606 F.2d 303, 315, 203 USPQ 245, 256 (CCPA 1979) and ***In re Pearson***, 494 F.2d 1399, 1405, 181 USPQ 641, 646 (CCPA 1974)) and (2) the particular manner in which an article or device is used cannot be relied on to distinguish structure over the prior art (**see, e.g., *In re Schreiber***, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) and ***In re Spada***, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990)).

With respect to the patent owner's contention that the terminal pins in the Zahn '964 patent have a cross-sectional dimension that is greater than the diameter of the aperture in the circuit board whereas the pins of Berg '448 fit "entirely within holes in the circuit board, this argument is once again not commensurate in scope with the claimed subject matter inasmuch as there no claim limitation which requires the terminal pins to be of an particular size relative to holes in

Appeal No. 97-3579
Control No. 90/002,797

the circuit board. We also observe that, although the Zahn '964 patent in the embodiment of Fig. 6 discloses terminal pins which have a cross-sectional dimension which is greater than the aperture in the circuit board (see column 4, lines 27-29), in the embodiment of Fig. 7 of the Zahn '964 patent the cross-sectional dimension of the terminal pins are less than the aperture in the circuit board (see column 4, lines 36-38).

As to the patent owner's evidence of nonobviousness, we must point out that evidence of nonobviousness, no matter how striking, cannot overcome a rejection based on lack of novelty. *See, e.g., In re Malagari*, 499 F.2d 1297, 1302-03, 182 USPQ 549, 553 (CCPA 1974) and *In re Wiggins*, 488 F.2d 538, 543, 179 USPQ 421, 425 (CCPA 1973).

In view of the above, we will sustain the rejection of claims 1 and 6 under 35 U.S.C. § 102(b) as being anticipated by Berg '448.

Turning now to rejections (1) through (5) of claims 1-7 under 35 U.S.C. § 103, the patent owner does not expressly direct any specific argument to any particular one of the

above-noted rejections. Instead, the patent owner broadly asserts that impermissible hindsight is being used in evaluating claims 1-7 and in arriving at a conclusion of obviousness. Thereafter, the brief states that:

Of the rejections under 35 U.S.C. § 103, the reference which is common to all is Ragard. Ragard is the only cited reference which actually discloses a length of terminal pins having ends which are other than blunt. However, Ragard shows that the length is **straight**. In particular, in describing the portion of the strip shown in a straight configuration in Fig. 10, Ragard states that "[t]his is how the wire is sold or shipped." (Col. 3, lines 4-6) Despite this clear disclosure, the examiner asserts that Ragard does not disclose **any** method of handling or storing his lengths of notched wire stock. Since lengths of stock are handled when they are shipped and stored immediately prior to being sold, Ragard certainly does disclose a method of handling and storing the wire stock described therein -- in **straight** lengths, as shown in Fig. 10.

Of the secondary references cited by the examiner as showing wound or bent strips of pins or nails, including Royse, Pierce, Berg '986, Metscher, Berg '448, and Fowler, **not one** shows pins or nails having two pointed ends and being connected in the strip pointed end to pointed end. Instead, the secondary references show coilable flat stock with a large aspect ratio (width : thickness). Thus, they do **not** teach or suggest that non-flat square or round shapes, such as the rods of Ragard, having pointed ends, would be coilable. This is especially true because the terminals of the secondary references are crimped terminals which are ductile

Appeal No. 97-3579
Control No. 90/002,797

in the crimped regions, thus making them especially conducive to being coiled.

* * *

Second, as shown by substantial evidence submitted by Autosplice¹¹ reviewed below, one skilled in the art would have expected the lengths of pins to break if coiled up on a standard reel of reasonable size. As a result, the combination of references would result in a "seemingly inoperative device," and thus the references teach away from the combination. [Brief, pages 43 and 44; footnote and citation omitted; footnote added.]

We are unpersuaded by the patent owner's contentions. Initially we note that while the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination (*see ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)), this does not mean that the cited references or prior must specifically suggest making the combination (*B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) and *In re Nilssen*, 851 F.2d 1401, 1403,

¹¹ Autosplice, Inc. is the patent owner (see brief, page 1).

Appeal No. 97-3579
Control No. 90/002,797

7 USPQ2d 1500, 1502 (Fed. Cir. 1988)). Rather, the test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Moreover, in evaluating such references it is proper to take into account not only the specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom (*In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)), and all of the disclosures in a reference must be evaluated for what they fairly teach one having ordinary skill in the art (*In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966)).

Here, there is absolutely nothing in Ragard which teaches that the lengths of wrapping post material are "straight" as the patent owner asserts. While the patent owner references Fig. 10 of Ragard as showing that the lengths are straight, Fig. 10 "is a partial perspective showing a formed portion of the wire" (column 2, lines 6 and 7) which is intended to show "what the section 56 of FIG. 8d looks like in perspective"

Appeal No. 97-3579
Control No. 90/002,797

(column 3 lines 4 and 5). Noting that FIG. 8d is a cross-section of the juncture of the wire as it is being formed (see column 2, lines 1 and 2), it is readily apparent that Fig. 10 is a very short section in perspective that is intended to show the juncture of the wire, rather than any appreciable length thereof. Accordingly, the patent owner's position that Fig. 10 of Ragard can be construed to show "straight" sections, appears to be based on speculation.

What Ragard actually teaches a machine for manufacturing a "continuous length" (column 3, line 19)¹² of wrapping post material which is "usually made of brass or copper alloy" (column 1, lines 10 and 11) wherein wire stock of "long lengths" (column 1, line 20) is fed to swaging dies 13 and notches of a double-truncated pyramid (see column 1, lines 48, 49 and Fig. 10) are formed in such a manner so as to define interconnected terminal portions for the purpose of providing

¹² Although the only reference to "continuous" as distinguished from "long" lengths in Ragard appears in the preamble of claim 1, a reference must be evaluated for all it teaches and is not limited to its specific embodiments. **In re Bode**, 550 F.2d 656, 661, 193 USPQ 12, 17 (CCPA 1977).

Appeal No. 97-3579
Control No. 90/002,797

stock material for circuit board terminal applications. This notched stock material is stated to overcome the prior art problems of first cutting the stock material and then shaping the cut ends (see column 1, lines 20-24). The wire is then sold and shipped in its notched condition with the individual terminal portions still interconnected (see column 1, lines 47-53 and column 3, lines 5-7). Inasmuch as Ragard expressly teaches that the product which is produced is a "continuous length" of wrapping post material (column 3, lines 19 and 29), the artisan would reasonably infer that such "continuous lengths" referred to coiled lengths.¹³

We are also unpersuaded by the patent owner's contention, with respect to the secondary references to Pierce, Berg '986, Metscher, Berg '448 and Fowler, that "**not one** shows pins or nails having two pointed ends connected in the strip pointed end to pointed end" but, instead "show coilable flat stock

¹³ In support of this inference, we observe that Zahn in his deposition testimony regarding Commissioner's EXHIBIT 24 (attached to the Zahn testimony), in response to the question "Is there any indication there that pin would be in coil form?" replied "Yes. It's -- there's a note on the bottom that says 'Pins to be continuous length.'" In addition, we also observe that Pierce also refers to "continuous strips" of jointed electrical terminals mounted on reels (column 1, lines 23-27).

Appeal No. 97-3579
Control No. 90/002,797

with a large aspect ratio (width : thickness)."

Nonobviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. **See In re Merck & Co.**, 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986). Here, it is Ragard which teaches pins having two pointed ends interconnected in a strip in a pointed-end to pointed-end fashion (see Fig. 10). The examiner has only relied on Pierce, Berg '986, Metscher, Berg '448 and Fowler for a suggestion to **coil** the preformed continuous lengths of Ragard (which already has the pointed ends of pins inter-connected). More particularly, Pierce in column 1, lines 23-27, and Figs. 1, 11, 14 and 18; Berg '986 in Figs. 1 and 6; and Berg '448 in Figs. 1, 3 and 4, all teach that preformed electrical terminals in strip form are supplied to machines for further insertion or other processing by providing coils of such strips on reels, with the individual preformed terminals being defined by notched regions of significantly less cross-sectional area than the remainder of the strip supply. Metscher, while not expressly teaching

Appeal No. 97-3579
Control No. 90/002,797

providing preformed electrical terminals in strip form that is coiled, nevertheless, teaches bending such strips around a substantial portion of roll 3 (see Fig. 1). Fowler discloses the winding stock material having **swaged** notches to define insertion elements or nails therein (page 1, lines 55 and 56) on a drum (page 1, lines 74-75) for the purpose supplying the stock material to an insertion machine (**i.e.**, a nail-applying machine - see page 1, lines 14-18). To the extent that the artisan would not reasonably infer Ragard's "continuous lengths" of preformed wrapping post material was in coiled form, we share the examiner's view that a combined consideration of Ragard, Pierce, Berg '986, Metscher, Berg '448 or Fowler would have fairly suggested to one of ordinary skill in the art to coil the preformed stock material of Ragard on a reel in order to achieve the self evident advantage of ease of handling the preformed strip as taught by Pierce, Berg '986, Metscher, Berg '448 and Fowler. Additional motivation can be found in column 1, lines 23-28, of Pierce wherein it is expressly stated the provision of strips being rolled into reels overcomes the disadvantages of loose

Appeal No. 97-3579
Control No. 90/002,797

terminals and provides better coaction with automatic and semi-automatic machinery and Berg '986 which states "for convenient handling, it [the strip] needs to be coiled" (see column 1, lines 20-22).

According to the patent owner

claims 1 through 5 ***inherently recite*** and claims 6 and 7 explicitly recite a limitation that the claimed terminal pins are made from copper alloy that is work-hardenable. [Brief page 42; emphasis ours.]

We do not agree with the patent owner's assertion that claims 1-5 can be considered to "inherently recite" that the terminal pins are made from a copper alloy that is work-hardenable. As we have noted above, the claims of a reexamination application are to be given their broadest reasonable interpretation consistent with the specification and ***extraneous limitations are not to be read into the claims. In re Paulson, supra.***

Moreover, as stated in ***In re Self***, 671 F.2d at 1348, 213 USPQ at 5 (CCPA 1982): "Many of appellant's arguments fail from the outset because, as the solicitor has pointed out, they are not based on limitations appearing in the claims." In other

Appeal No. 97-3579
Control No. 90/002,797

words, limitations not expressly appearing in the claims may not be relied on in support of patentability.

It is also the patent owner's contention that they have established by substantial evidence that one of ordinary skill in this art would expect terminal pins made of copper, or a copper alloy such as phosphor bronze alloy, would be too brittle and to break if coiled. This argument is relevant, at the most, to claims 6 and 7 inasmuch as these are the only claims which require that the supply strip be formed of a copper alloy that is work-hardenable. Even with respect to claims 6 and 7, however, we are not, for the reasons stated *infra* in our consideration of the patent owner's evidence of nonobviousness, of the opinion that the evidence presented by the patent owner persuasively establishes that it would have been unobvious to combine the teachings of the references in the manner proposed by the examiner because the artisan would have expected a strip of preformed terminal pins made of a copper alloy that is work hardenable to break if it was formed into a coil. In this regard, it should be noted that obviousness under § 103 does not require absolute

Appeal No. 97-3579
Control No. 90/002,797

predictability of success; instead, all that is required is there be a reasonable expectation of success. ***In re O'Farrell***, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

The brief also states:

Autosplice's disclosure [the admitted prior art] lends utterly no further support for obviousness. As the examiner has asserted, Ragard already discloses that a strip of pins with double truncated pyramidal ends is useful in wire wrapping applications. Also, the secondary references already show coils of terminal pins. Autosplice's disclosure of various types of known apparatus operating with a continuous supply strip (without even stating whether those strips are in coiled or straight form) is at most equivalent to and in fact much less than the disclosures in the secondary references. Thus, Autosplice's disclosure adds nothing to the issue of obviousness.

In fact, the only thing possibly accomplished by Autosplice's disclosure is to mention the known type of apparatus and the problem with blunt-ended pins in one document. However, rather than serving as prior art, this juxtaposition shows that the inventor Zahn recognized and solved a problem not previously solved in the prior art -- that of providing terminal pins with pointed ends in the advantageous form of a coiled strip as claimed. As this is the whole point to the invention as claimed, it is difficult to comprehend how the examiner can cite it as prior art.

Aside from the reasons set forth above, the claimed coiled notched wire would not be obvious from the combination of Ragard and Royse for other reasons. The Royse machine starts with coiled unnotched steel wire. The Ragard swager produces reduced (weakened) wire regions on unnotched brass or copper wire. There is no teaching that the Ragard swager, for use with brass or copper wire, would work satisfactorily with the steel wire needed by Royse. Also, Royse features a machine capable of changing pin sizes, because the wire supply, being unnotched, can be severed wherever desired. However, a coiled strip of pre-notched wires fixes the pin length, contrary to the basic concept of the Royse machine. Thus, one skilled in the art would have no motivation to combine the teachings of Ragard and Royse. [Pages 46 and 47.]

The above arguments appear to be directed to Rejection (2) *i.e.*, the admitted prior art in view of Ragard and Royse, inasmuch as this is the only rejection wherein these three references are relied on. We do not, however, find these arguments to be persuasive. The mere fact that the admitted prior art is equivalent to, or even less, than the disclosures of other references is irrelevant. The fact remains that the admitted prior art plainly teaches that "[v]arious types of apparatuses are known which operate from a continuous supply strip to intermittently feed, sever and drive terminal pins into a workpiece" (column 1, lines 23-26). Ragard, as we have

Appeal No. 97-3579
Control No. 90/002,797

noted above, teaches a machine for manufacturing a "continuous length" (which the artisan would reasonably infer to be a coiled length) of wrapping post material that is usually made of a brass or copper alloy wherein the wire stock is notched by swaging dies so as to form double-truncated pyramids (*i.e.*, pointed regions), thereby overcoming the prior art problems of first cutting the stock material and then shaping the cut ends. This wire is then sold and shipped in its notched condition with the individual terminal portions still interconnected. Royse teaches that stock material for terminal applying machines is provided is provided in "long lengths" and it is conventionally wound on reels (see column 6, lines 44, 45 and 53-56). The artisan would also have reasonably inferred that the long lengths of material were wound onto Royse's reel for the self-evident advantage of providing ease of handling and would have found it obvious to roll the long lengths of stock material of Ragard on such a reel in order to achieve this self-evident advantage. We share the examiner's view that one of ordinary skill in this art would have found it obvious to (1) preform the stock

Appeal No. 97-3579
Control No. 90/002,797

material of the admitted prior art with "pointed regions" as taught by Ragard in order to achieve Ragard's expressly stated advantage of overcoming the prior art problems of first cutting, and then shaping the ends of the terminals and (2), to coil the preformed stock material of the admitted prior art, as modified by Ragard, on a reel as taught by Royse in order to achieve Royse's self-evident advantage of ease of handling. If the above-noted arguments with respect to the admitted prior art and Ragard were intended to also apply to Rejection (5), *i.e.*, the admitted prior art in view of Ragard and Berg '448 (wherein the examiner combined the teachings of the admitted prior art and Ragard in the same manner as Rejection (2) -- see answer, pages 12 and 13), then our remarks concerning the admitted prior art and Ragard are equally applicable to that rejection (although the patent owner has no mention of Berg '448 in the context of this rejection).

As to the patent owner's contentions that (a) there is no teaching the Ragard swager would work satisfactorily with the steel wire "needed" by Royse and (b) there is no motivation to

Appeal No. 97-3579
Control No. 90/002,797

combine the teachings of Ragard and Royse since Royse is capable of changing pin sizes whereas the "pre-notched wires" of Ragard fixes the pin length, we observe that it is the examiner's position with respect to Rejection (2) that it would have been obvious to have modified the stock material of **the admitted prior art** (and not Royse as the patent owner argues) in view of the teachings of Ragard (see answer, page 9). Even if the patent owner intends arguments (a) and (b) to be directed to Rejection (3), **i.e.**, Ragard in view of Royse and Fowler, we must point out that Ragard does not "need" steel wire as the patent owner alleges. Instead, Ragard merely states his "preferred" material is steel wire but **"[o]ther types of wire may be employed, . . . soft copper wire** may not have sufficient strength to be driven through the substrate board this depending on the nature of the substrate board . . . diameter, hardness and length of the particular wire terminal" (see column 6, lines 48-53; emphasis ours). Thus, a fair reading of Royse makes it abundantly clear that other types of wire **including copper** may be used if conditions allow. In any event, in Rejection (3) the examiner is not

Appeal No. 97-3579
Control No. 90/002,797

proposing to bodily incorporate the swaging dies of Ragard into the device of Royse. **Instead**, what the examiner is proposing is to coil or "wind the **formed** wire stock of Ragard as suggested by Royse" (see answer, page 10; emphasis ours), particularly in view of the fact that Royse teaches "that handling feed stock in reels is conventional for electrical terminal assembly machinery" (see answer, page 10). Moreover, we also observe Ragard's teachings are not limited to a "fixed" pin length as the patent owner would apparently have us believe. Instead, Ragard clearly teaches providing terminals of varying length (see column 1, lines 30-32). Arguments (a) and (b) make no mention of Fowler which was also used by the examiner in Rejection (3) in the context of this rejection.

As to the patent owner's contention that the patent to Zemek¹⁴ shows the device of Ragard was used **only directly** in conjunction with a terminal applying machine (see brief, page 48, footnote 7), this is simply not the case. Zemek makes no

¹⁴ U.S. Patent No. 4,501,065 to Zemek et al. is attached to the patent owner's statement as EXHIBIT I.

Appeal No. 97-3579
Control No. 90/002,797

mention whatsoever of Ragard and vice versa, and the patent owner's position set forth in footnote 7 is based on speculation. Moreover, this speculative position is **directly contradicted** by the **express** teachings of Ragard. That is, Ragard **expressly states** that his notched stock material is "sold and shipped" in the form illustrated in Fig. 10 (see column 3, lines 4-8), and thus is not fed "directly" to a terminal applying machine as the patent owner would have us believe.

In view of the above, it is our conclusion that the applied reference evidence establishes a **prima facie** case of obviousness vis-à-vis the subject matter defined by the claims on appeal.

Having arrived at the conclusion that the evidence of obviousness as applied in the rejection of the claims on appeal is sufficient to establish a **prima facie** case of obviousness, we recognize that the evidence of nonobviousness submitted by the patent owner must be considered en route to a determination of obviousness/nonobviousness under 35 U.S.C. § 103. **See Stratoflex Inc. v. Aeroquip Corp.**, 713 F.2d 1530,

Appeal No. 97-3579
Control No. 90/002,797

1538, 218 USPQ 871, 879 (Fed. Cir. 1983). Accordingly, we consider anew the issue of obviousness under 35 U.S.C. § 103, carefully evaluating therewith the objective evidence of nonobviousness and argument supplied by the patent owner. **See *In re Piasecki***, 745 F.2d 1468, 1472-73, 223 USPQ 785, 788 (Fed. Cir. 1984).

As evidence of nonobviousness the patent owner has relied on the Zahn I affidavit and the Zahn II, Zahn III, Zahn IV, Zahn V, Winter I, Winter II, Rosen, Lazar I, Lazar II, Lazar III and P. Zahn declarations.

The Winter I and Rosen declarations each state essentially the same thing, namely, that it would have been unobvious to combine the teachings of Ragard and Pierce, Berg '986 and the German patent (Metscher). This opinion is stated to be based on the "assumption" that "conventional" un-annealed phosphor-bronze alloys were used and concludes the artisan would have expected coiling the Ragard stock material of interconnected pins about a spool of "reasonable diameter" would cause fractures at the "severely work-hardened, stress-intensified" notches. Thus

Appeal No. 97-3579
Control No. 90/002,797

these declarations, at the most, only address the examiner's rejection of claims 1-7 based on the combined disclosures of Ragard and Pierce, Berg '986 or Metscher. Moreover, the declarations are conclusory in nature and unsupported by facts, other than perhaps the well known fact that swaging will harden a work piece at least to some degree.

Declarations, such as these, which offer only opinion evidence without factual support are of little value. **See In re**

Brandstadter, 484 F.2d 1395, 1406, 179 USPQ 286, 294 (CCPA 1973), **In re Thompson**, 545 F.2d 1290, 1295,

192 USPQ 275, 277-78 (CCPA 1976), **In re DeBlauwe**, 736 F.2d 699, 705, 222 USPQ2d 191, 196 (Fed. Cir. 1984) and **In re**

Beattie,

974 F.2d 1309, 1313, 24 USPQ2d 1040, 1043 (Fed. Cir. 1992).

Moreover, Ragard merely teaches "usually" the terminals are made of a "brass or copper alloy." Other copper alloys or other materials such as soldered coated steel are never addressed in these declarations. We also believe that the artisan would understand even severely work hardened materials could readily be formed into coils if the diameter was large

Appeal No. 97-3579
Control No. 90/002,797

enough. While the Winter I makes reference to coils of a "reasonable" size, it is unclear what size is "reasonable." In this regard, we also observe neither the Zahn '964 patent nor the claims on appeal refer to coils of any particular size. Finally, as to the declarants' opinion on obviousness, we note that while it is proper to give some weight to a persuasively supported statement of one skilled in the art on what was not obvious to him or her, obviousness is a question of law which we must decide. Moreover, we note that while it is proper to give some weight to a persuasively supported statement of one skilled in the art on what was not obvious to him, obviousness is a question of law which we must decide (*see In re Weber*, 341 F.2d 143, 145, 144 USPQ 495, 497 (CCPA 1965) and *In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1574-75, 224 USPQ 617, 623 (Fed. Cir. 1985)), and an expert's opinion on the legal conclusion of obviousness is neither necessary nor controlling (*see Avia Group Int'l, Inc. v. L.A. Gear Cal., Inc.*, 853 F.2d 1557, 1564,

Appeal No. 97-3579
Control No. 90/002,797

7 USPQ2d 1548, 1554 (Fed. Cir. 1988)).

The Winter II and Lazar II declarations, insofar as they pertain to the § 103 rejections, merely state that materials such as copper alloys will work-harden when swaged or otherwise worked to reduce dimensions. This evidence, however, merely establishes that which we have acknowledged above, namely, that swaging will harden such materials at least to some degree.

The Zahn I affidavit makes the broad conclusory statement that it would have not been obvious to form a supply strip of integrally connected preformed terminal pins but is accompanied by few supporting facts other than reference to the "most popular" size pins and the fact he utilizes a coining¹⁵ operation to form his notches. However, neither the Zahn '964 patent nor the claims in issue make any reference to either size of pins or how they are made. We also note, it appears to us

¹⁵ *The Random House Dictionary of the English Language, Second Edition-Unabridged*, published by Random House Inc., New York, N.Y. defines "coin" as -Metalworking. to shape the surface of (metal) by squeezing between two dies. Cf. emboss--.

Appeal No. 97-3579
Control No. 90/002,797

from the Zahn I affidavit that the "coining" operation referred to therein is essentially the same the swaging operation of Ragard.

The Lazar I declaration in Para. V expresses "surprise" as to the fact that an insertion machine of pre-notched pin strip material "was at least 5 times faster than with the other techniques" and the "strength of the notched coiled pin strip material." There is nothing, however, to establish the pre-notched pin strip material was that of the Zahn '964 patent,¹⁶ or with respect to the noted speed, that it was not due to other factors such as the terminal applying machinery and feed mechanism employed. In Para. VII of the Lazar I declaration it is also stated that "[t]hose ***machines*** [presumably that of the patent owner] sharply reduce the manufacturing cost" (emphasis ours); however, the claims are directed to a coiled

¹⁶ In an attempt to overcome this deficiency, the Lazar III declaration in paragraph 3 states that "the reel of pre-notched pin strip material which I first saw being used on an insertion machine in 1978 was in fact manufactured by Autosplice." However, it does not follow from the mere fact that the pin strip material was manufactured by Autosplice, that it was the pin strip disclosed and claimed in the Zahn '964 patent.

strip, rather than to a machine. Para. VIII of the Lazar I declaration also states "Ragard specifically mentions shipping or distribution of long lengths of post material, which implies to me straight lengths." While we respect the declarant's opinion, we must point out that others in the art, such as Royse, refer to "long lengths" in the context of post material which is wound on reels (see column 6, lines 44 and 45). Moreover, as we have noted above, Ragard does not just refer to his pre-notched material in terms of "long lengths." That is, Ragard also characterizes his pre-notched material as being of a "continuous length," and Irwin Zahn has indicated in his deposition testimony that "Pins to be continuous length" indicated that the pins were in coil form (see page 67 of the Zahn testimony). Similarly, the reference to Pierce refers to "continuous strips" of joined electrical terminals on reels (column 1, lines 23-27).

The Lazar I declaration also opines that it would have been unobvious to coil the pre-notched stock of Ragard in view of the teachings of Royse, Pierce, Berg or Metscher; however,

this opinion appears to be based (as were the declarations of Winter

I and Rosen) on the assumption that the terminal material was "conventional phosphor-bronze" (see Para. V) and, therefore, suffers from the same deficiencies already noted with respect to the Winter I and Rosen declarations. The opinion also appears to be based on the assumption that the stock material has an outside diameter of 0.025 in. and was "necked down to about 0.015 in." (see Para. IX). We must point out, however, neither the claims in issue nor the disclosures of the Zahn '964 and Ragard patents teach any specific dimensions.

The Lazar I declaration goes on to state that the declarant was familiar with the 1989 Zahn paper¹⁷ (Paras. VII and X) and the developments disclosed therein was a "pioneering invention" which "from a reel of coiled pre-notched pin stock material has arisen the ability to machine

¹⁷ The 1989 Zahn paper, which was delivered at the 22nd Annual Connector & Interconnection Technology Symposium and published by the International Institute of Connector and Interconnection Technology, Inc., is annexed as Exhibit G to the patent owner's statement in response to the notice of reexamination (see Paper No. 6).

Appeal No. 97-3579
Control No. 90/002,797

insert right-angle pins" (see Para. X). However, the 1989 Zahn paper on page 346 expressly states

the same pre-notched and starred continuous pin material **and newly designed applicator tooling**, triggered a breakthrough that allowed 90E pins to be machine inserted (emphasis ours).

Thus, according to the 1989 Zahn paper the ability to machine insert the 90E pins was **not** simply due to the pre-notched stock material as the Lazar I declaration would apparently have us believe, but was **also** due to the "newly designed applicator tooling." Indeed, viewing the insertion sequence depicted in Figure 4 of the 1989 Zahn paper, it is difficult to envision what effect the provision of coiled pre-notched stock material might have on 90E pin insertion.

The Zahn II declaration states the "resultant **machine** and pin strips were an instant success" (emphasis ours) with the patent owner's sales reaching a "level of 80 **machines** annually, which was 30% greater than any of our other **machines** sales prior to that" (emphasis ours). The Zahn II declaration goes on to state that:

Pin insertion rates with the **new machines** climbed from 5000 pins/hour in 1977 up to 10,000-

Appeal No. 97-3579
Control No. 90/002,797

18,000 pins/hour **with computer control**. But, the pin strips supplied today are essentially the same as originally made in 1977, and the insertion head is essentially the same as that of the **original machine** in 1977. The computer capability is primarily to allow automatic positioning of the PWB holes below the insertion head. [Page 6; emphasis ours.]

The Zahn III declaration also refers to the 1989 Zahn Paper and states "[w]ithout that design [the Zahn '964 patent], the high-speeds, high efficiency, and low costs described in said 1989 paper could not have been achieved." Attached to the Zahn declaration is a spread sheet showing impressive "PIN SALES," although it is not clear from this document whether all such sales were from coiled strips of electrically conductive material as defined by the claims of the Zahn '964 patent.

The declaration of P. Zahn also includes impressive sales figures, but once again it is not clear from this document whether such sales all were from coiled strips of electrically conductive material as defined by the claims of the Zahn '964 patent. The declarant also offers the conclusory opinion that the "large market share" of the patent owner was a direct

Appeal No. 97-3579
Control No. 90/002,797

result of the "widespread acceptance and use" of the invention claimed in the Zahn '964 patent.

The Zahn IV declaration states that

as one skilled in the art, I now explicitly state that the success was due to the patented pins. The pins are a *sine qua non* of the insertion system. Without the coiled strip of terminal pins which are prenotched, the machine, which is designed to operate with these coiled strips of terminal pins only, would be useless. It is these coiled strips of terminal pins that enable the system to work and to achieve an insertion rate of as many as 18,000 pins/hour. [Paragraph 11.]

This declaration in paragraph 12 list sales figures beginning in 1988 (the first year in which computerized records were kept by the patent owner) through 1995, which sales are stated to be "covered by claim 1 of the Zahn patent." Paragraph 13 of the Zahn IV declaration goes on to state that:

Because of the terminal pins claimed in claim 1 of the Zahn patent, Autosplice has gained at least a 40 percent market share for terminal pins, a market in which of at least 270 connector companies participate. I reached this **conclusion** based on the sales figures recited in the previous paragraph, **my individual evaluation** from over 40 years of experience in the connector business, and through **visits** to plants of virtually every major manufacturer that utilizes pin insertion machines that enable [sic, enabled] me to **estimate industry capacity**. That **estimate** is confirmed by Ken Fleck who is a market expert in the electrical and

Appeal No. 97-3579
Control No. 90/002,797

electronic connector industry. Mr. Fleck's company Fleck Research produced the May 3, 1993 report annexed to the Declaration of Peter Zahn submitted in this case. [Emphasis ours.]

Although the Zahn IV declaration attempts to establish a relationship between the 1988-1995 sales and the total market share, it is readily apparent from paragraph 13 that the basis upon which the total market share was determined was at least partly subjective in nature. Given the information provided by the patent owner, it is hard to judge the total sales set forth in paragraph 12 of the Zahn IV declaration (as well as all the other noted sales figures) in the context of total market share, particularly in a time frame wherein the entire electronics industry was booming.

The Zahn V declaration states that marketing of the claimed pins began in 1979 and the sales of the claimed terminal pins "increased rapidly and reached about \$4-5 million within about five years." Although the declarant states that to the best of his knowledge the sales of terminal pins by two competitors "dwindled substantially," the \$4-5 million dollar sales figure

Appeal No. 97-3579
Control No. 90/002,797

has not been placed in any meaningful context such as total market share.

It is well settled that evidence of commercial success is relevant only if it flows from the merits of the **claimed** invention. **Sjolund v. Musland**, 847 F.2d 1573, 1582, 6 USPQ2d 2020, 2028 (Fed. Cir. 1988). In other words, the commercial success must be due to claimed features, and not unclaimed features. **Joy Technologies v. Manbeck**, 751 F. Supp. 225, 231, 17 USPQ2d 1257, 1260-61 (D.D.C. 1990), **aff'd**, 959 F.2d 226, 229, 22 USPQ2d 1153, 1156 (Fed. Cir. 1992)(Features responsible for commercial success were recited only in allowed dependent claims, and therefore the evidence of commercial success was not commensurate in scope with the broad claims at issue).

On the one hand, (1) the Lazar I declaration states that it is the declarant's opinion that "the continuous lengths of coiled notched terminal pin material was the essential element for the commercial success", (2) the Lazar III declaration states that the "pins" are the **sine qua non** for the commercial success of the "insertion system", (3) the Zahn

Appeal No. 97-3579
Control No. 90/002,797

III declaration states that "the continuous lengths of coiled notched terminal pin material" was the **sine qua non** for the commercial success demonstrated by the "billions of pins mounted using the Zahn '964 invention" and (4) the Zahn IV declaration explicitly states that the "[commercial] success was due to the patented pins" and that the "pins" are a **sine qua non** of the "insertion system." Even if it is assumed that the "continuous lengths of coiled notched terminal material" and "pins" in these declarations referred to the coiled strip of electrically conductive material **claimed** in the Zahn '964 patent, these statements are all conclusory in nature, with no persuasive supporting facts.

On the other hand, the portions of the 1989 Zahn paper, as well as the portions of the Lazar I and Zahn II declarations, that we have noted above appear to establish that a major portion of the numerous asserted advantages and sales figures are attri-butable to the **machine**, rather than being attributable solely to the coiled strip of stock material claimed in the Zahn '964 patent as the patent owner apparently would have us believe. Lending further support for

the conclusion that a major portion of the asserted advantages is due to other extraneous factors

(*i.e.*, the machine and/or method), the 1989 Zahn paper also states the various advantages noted therein were attributable to

a simple and unique high production pin insertion system, named Autopin/2. The **heart of the system** was a newly patented and continuous pin insertion **method**. This method included continuous square, round, and rectangular pin material which was notched and starred at its proper pitch length.

The other part of the system, **in addition** to the continuous pin material, was **a series of effective pin insertion machines**. [page 345; emphasis ours]

We also observe that, in comparing the above-quoted portion of the Zahn II and Zahn IV declarations, the Zahn II declaration states that the pin strips supplied today are essentially the same as those originally made in 1977 (when the insertion rate was 5,000 pins/hour). In the Zahn IV declaration, however, it is stated that it is "these coiled strips of terminal pins that enable the system to work and to achieve an insertion rate of as many as 18,000 pins/hour." If

Appeal No. 97-3579
Control No. 90/002,797

the pin strips did not change over the years that the insertion rate climbed from 5,000 pins/hour to 18,000 pins/hour, then it is difficult to understand how all of this 13,000 pins/hour increase can be attributed solely to the pin strips as the patent owner would apparently have us believe. The conclusion is inescapable that a major portion of the increase in insertion rate was attributable to other extraneous factors (*e.g.*, improvements in the insertion machinery). It is also readily apparent that the improved sales set forth in the 1988-1995 time frame occurred well after the rate of insertion increased, thus raising the question of whether the increased sales were due to the increased insertion rate (which in turn was due in part at least to other extraneous factors), rather than the merits the claimed invention.

In our view, the patent owner has not clearly established that the sales figures and other purported advantages were the result of the unique features of the claimed invention rather than the result of other extraneous factors, such as the particular machinery employed.

Appeal No. 97-3579
Control No. 90/002,797

When all the evidence and argument are considered anew it is our conclusion that, on balance, the evidence and argument presented by the patent owner fails to outweigh the evidence of obviousness established by the prior art. **See Newell Cos. v. Kenney Mfg. Co.**, 864 F.2d 757, 784, 9 USPQ2d 1417, 1439 (Fed. Cir. 1988), **cert. denied**, 493 U.S. 814 (1989), and **In re Beattie, supra**.

All of the examiner's rejections are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)

AFFIRMED

HARRISON E. McCANDLISH, Senior)

Appeal No. 97-3579
Control No. 90/002,797

Administrative Patent Judge)	
)	
)	
)	
JAMES M. MEISTER)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
LAWRENCE J. STAAB)	
Administrative Patent Judge)	

Appeal No. 97-3579
Control No. 90/002,797

Baker & McKenzie
Intellectual Property Group
805 Third Avenue
New York, NY 10022

Requestor:

Franklin D. Wolffe
Banner & Allegretti, LTD.
1001 G. Street, N.W. 11th Floor
Washington, DC 20001

JMM/cam